A Guide to Using the City Score Data for the City of Boston, MA (v. 2020)

Overview

The document describes the structure and organization of the City Score dataset, which contains information of metrics on overall city health based on work done across all facets of the City of Boston (e.g., EMS response time, 311 Call center performance, Boston fire department incidents, Boston Public School attendance). The data span January 1st, 2018 to August 18th, 2020. This data is released through the city's open data initiative at data.boston.gov. The daily scores reflect activity from the previous weekday, monthly scores reflect activity from the previous month (on a rolling basis). The datasets included are (a) *City_Score_Daily*.csv and (b) *City_Score_Month-Year.csv*, each containing estimates at the time scale reflected in the name.

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1. City Score information

1.1. Description of Contents

The data is organized in two main datasets (a) *City Score_Daily.csv* and (b) *City Score_Month-Year.csv*. *City Score_Daily* consists of 22,341 rows and 3 columns. *City Score_Month-Year* consists of 1,782 rows and 4 columns. The datasets each contain metrics intended to reflect the performance of city services during a given time period. These metrics include EMS incidents, library users, response to requests for public works services on time, and others. The data sets, respectively, capture performance on these metrics daily and monthly (rolling average). For each metric, a score less than 1 indicates that performance for that period was below the target, a score greater than 1 indicates performance exceeded the target. If there was a lack of observations (e.g.: no streetlight outrage reported for fixing) the score could not be calculated, thus receiving an NA value. Equations for calculating performance, benchmarks and equations for comparing to benchmarks are all reported in the Appendix.

Note: The monthly score represents the city score based on performance from previous month on a rolling average basis. However, there are multiple values for the monthly score released during multiple days during some months. There is no clear information on how many days are considered as for a month (30, 31 or other value). Thus, by following the information from the original dataset, we are including the monthly score and the date when it was released (as a combination of the columns day, month and year).

1.2. Summary of variables

- *metric_name* is the name of the metric for which the score is measured; there are 23 unique metrics, the details of which can be found in Appendix.

- *Date* is the date on which the score was calculated.

- *day_score* is the score calculated for the specified day.

- *month_score* is the score calculated for the specified month.

- *day* is the day on which the monthly score was calculated.

- *month* is the month on which the monthly score was calculated.

- *year* is the year on which the monthly score was calculated.

Appendix. Unique Metrics

Metric Name	Standard	Benchmark Comparison	Score Calculation Logic
311 Call Center Performance	The 311 Call center is the City's constituent service center, to help with requests for non-emergency City services and information. The aim is to have live agents answer 311 calls within 30 seconds	At least 95% of the time	$$\frac{\frac{count(resp.\,in\,30\,secs)}{count(all\,calls)}}{0.95}$$
BFD Incidents	An occurrence that requires action or support by emergency services (Boston Fire Department) to prevent or minimize loss of life or damage to property.	A score greater than 1 indicates a decrease in BFD incidents relative to historical average	$$\frac{Avg\,count(previous\,occur.)}{Avg\,count(all\,occur.)}$$
BFD Response Time	When someone calls 911 to report an incident and BFD is dispatched, the aim for the first fire truck is to arrive on scene in 4 minutes or less from the time they leave the station	At least 90% of the time	$$\frac{\frac{Count\,(resp.\,in\,4\,min)}{Count\,(all\,resp.)}}{0.9}$$

BPS Attendance	The aim is for maximum number of enrolled students to be in attendance every day across all Boston Public Schools during the school year	At least 95%	$Avg(\dfrac{\frac{Count\ (students\ attd. \geq 95\%)}{Count\ (all\ attd.)}}{0.95})$
Constituent Satisfaction Surveys	When constituent provides an email address when making a 311 request to get notifications about a case, review rating is requested about customer satisfaction after the case is closed	At least 4 out of 5 stars	$\dfrac{\frac{Count\ (ratings\ more\ than\ 4)}{Count\ (all\ ratings.)}}{4}$
EMS Response Time	When someone call 911 to report a life-threatening illness or injury it triggers a priority 1 EMS response. The aim is for a median EMS response time of 6 minutes or less for priority 1 responses.	Within 6 minutes	$\dfrac{6}{Median\ response\ time}$
Graffiti Removal On-Time %	The removal of graffiti on private property as requested by Boston residents and approved by property owners. The aim is to	At least 80% of the time	$\dfrac{\frac{count(graffiti\ removal\ in\ 45\ BD)}{count(all\ graffiti\ removals)}}{0.8}$

	remove this graffiti reported through 311 within 45 business days.		
Homicides	The killing of one person by another	A score greater than 1 indicates a decrease in homicides relative to the historical average	$$\frac{Avg\ count(previous\ occur.)}{Avg\ count(all\ occur.)}$$
Library Users	If a user uses their library card to access a service through the Boston Public Library, such as to use a computer or to check out a book or eBook, they are considered an active library user.		$$\frac{Avg\ count(all\ occur.)}{Avg\ count(previous\ occur.)}$$
Missed Trash on Time	If trash or recycling was put out on time for someone but was not picked up, the Public Works Department will send a crew to inspect. The aim is to inspect missed trash reported through 311 within 1 business day.	At least 80% of the time	$$\frac{\frac{count(missed\ trash\ insp.\ in\ 1BD)}{count(all\ inspections)}}{0.8}$$

On Time Permit Reviews	"As of right" permits are those which have been determined not to require any further relief from the zoning code via the Board of Appeal process. The aim is to review "as of right" planning & zoning permits within 20 business days.	At least 75% of the time	$$\frac{\frac{count(Permit\ reviews\ in\ 20\ BD)}{count(all\ permit\ reviews)}}{1}$$
Parks Maintenance on Time	The primary tasks of parks maintenance include trash removal, grass cutting and field lining as well as the maintenance of fencing, benches, play equipment, irrigation and graffiti removal. The aim is to address park lighting requests within 7 business days and all other parks maintenance requests within 5 business days.	At least 80% of the time	$$\frac{\frac{count(park\ maint.\ in\ 5-7BD)}{count(all\ maint.)}}{0.8}$$
Part 1 Crimes	Index crimes reported to the FBI for serious offenses,	A score greater than 1 indicates a decrease in	$$\frac{Avg\ count(previous\ occur.)}{Avg\ count(all\ occur.)}$$

	including aggravated assault, forcible rape, murder, robbery, arson, burglary, larceny, theft and motor vehicle theft. In CityScore this metric excludes homicides, shootings and stabbings, which are tracked independently.	Part 1 Crimes relative to historical average.	
Pothole Repair on Time %	The Public Works Department repairs potholes to increase safety and reduce vehicular damage. The aim is to repair the potholes reported through 311 within 1 business day.	At least 80% of the time	$$\frac{\frac{count(repair\ in\ 1BD)}{count(all\ repairs)}}{0.8}$$
Shootings	Assault and battery (nonfatal) with a firearm.	A score greater than 1 indicates a decrease in shootings relative to the historical average.	$$\frac{Avg\ count(previous\ occur.)}{Avg\ count(all\ occur.)}$$
Sign Installation on Time %	The Transportation Department installs & maintains signs to	At least 80% of the time	$$\frac{\frac{count(install.in\ 30\ BD)}{count(all\ install.)}}{0.8}$$

	provide clarity & safety on Boston's streets. The aim is to fix damaged signs or install approved new signs within 30 calendar days		
Signal Repair on Time %	The Transportation Department is responsible for repairing broken or malfunctioning traffic signals. The aim is to repair traffic signal outages reported through 311 within 24 hours.	At least 80% of the time	$$\frac{\frac{count(repair\ in\ 24\ hours)}{count(all\ repairs)}}{0.8}$$
Stabbings	Assault and battery (nonfatal) with a knife.	A score greater than 1 indicates a decrease in stabbings relative to the historical average	$$\frac{Avg\ count(previous\ occur.)}{Avg\ count(all\ occur.)}$$
Streetlight Outages on Time %	The Public Works Department is tasked with repairing broken or malfunctioning streetlights. The aim is to repair streetlight outages reported through 311 within 10 business days.	At least 80% of the time	$$\frac{\frac{count(repair\ within\ 10BD)}{count(all\ repairs)}}{0.8}$$

Tree Maintenance on Time %	The tree maintenance division provides maintenance, including pruning and removal, to 38,000 street trees and 2600 acres of wooded parkland. The aim is to perform maintenance of trees reported through 311 within 365 calendar days	At least 80% of the time	$$\frac{\dfrac{count(maint.\,in\,365\,days)}{count(all\,maint.)}}{0.8}$$